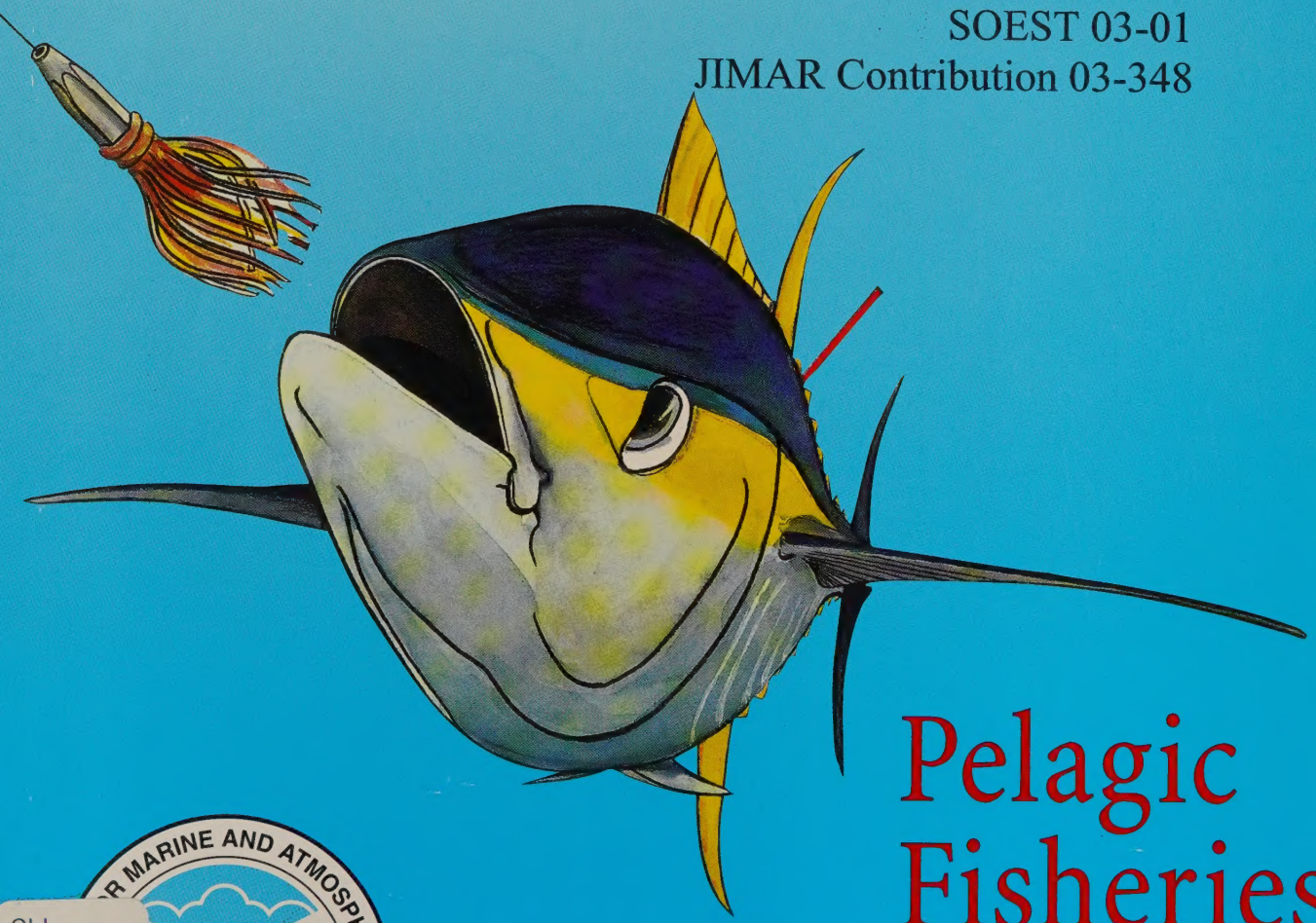
Economic and Operational Characteristics of the Hawaii-Based Longline Fleet in 2000

Joseph M. O'Malley and Samuel G. Pooley

SOEST 03-01
JIMAR Contribution 03-348



Pelagic Fisheries Research Program

SH
214.6
.S64
03-01

NMFS Honolulu Library
00000000001552

Economic and Operational Characteristics of the Hawaii-Based Longline Fleet in 2000

Joseph M. O'Malley
Joint Institute of Marine and
Atmospheric Research
University of Hawaii at Manoa
1000 Pope Road
Honolulu, HI 96822

and

Samuel G. Pooley
Honolulu Laboratory
Southwest Fisheries Science Center
National Marine Fisheries Service, NOAA
Honolulu, HI 96822-2396

SH
214.6
.S64
03-01

SOEST 03-01
JIMAR Contribution 03-348

DISCLAIMER

The views expressed herein are those of the authors and do not necessarily reflect the views of NOAA or any of its subdivisions.

ACKNOWLEDGMENTS

The authors thank the vessel owners, captains, crewmembers, and industry members for participating in the study, especially Jim Cook, Minh Dang and Mr. Pak. We also thank William A. Walsh, Walter Machado (JIMAR/UH-Manoa), Kurt Kawamoto, Russell Ito (NMFS, Honolulu Laboratory), and Marcia Hamilton (WPRFMC) for their assistance.

This project was funded by cooperative agreement #653530 between the Joint Institute for Marine and Atmospheric Research (JIMAR) and the National Oceanic and Atmospheric Administration (NOAA). The views expressed herein are those of the authors and do not necessarily reflect the views of the NOAA or any of its subdivisions.

ABSTRACT

The economic impact of state and federal regulations on commercial fishermen is playing an increasing role in fisheries management. The Magnuson-Stevens Fishery Conservation and Management Act, the Regulatory Flexibility Act, and Executive Order 12866 require the regional fishery management councils to consider potential economic impacts of future regulations in their planning efforts. In 1993 a Joint Institute for Marine and Atmospheric Research/National Marine Fisheries Service study documented the cost/earnings of the fleet. The fleet is now, however, operating under considerably different conditions than in the early 1990s primarily because of protected species issues. The primary objective of this study is to provide baseline economic information associated with operating a pelagic longline vessel in Hawaii in 2000. Additional objectives include documenting physical and operational characteristics of vessels, economic impacts of the most recent regulations, fishermen's opinions on the status of the fishery, and basic demographics of the fleet.

Operational and vessel costs were collected by personal interviews with vessel owners, captains, and crew. Revenue information was obtained from the Hawaii Department of Aquatic Resources commercial catch reports. It was estimated that swordfish and tuna vessels earned a net return of $27,484 and $55,058, respectively, in 2000. Among the tuna vessels, the small vessels (<56 ft) were the most profitable. These vessels had higher gross revenues and, consequently, higher labor costs but lower fixed and variable costs. Large swordfish vessels (>74 ft) were more profitable than smaller swordfish vessels, which is likely due to higher gross revenues.

Contents

1. INTRODUCTION 1

2. METHODS 2
2.1 Survey and Data Acquisition 2
2.2 Fishing Expenditures and Data Analysis 3
2.3 Labor Costs 3

3. RESULTS AND DISCUSSION 4
3.1 Interviews 4
3.2 Physical and Operational Characteristics 4
3.3 Costs 4
3.4 Revenue 5
3.5 Income Statements 6
3.6 Miscellaneous Economic Analysis 12
3.6.1 Highliners 12
3.6.2 Comparison with the 1993 Cost-Earning Study 12
3.6.3 Shark Finning Ban 12
3.6.4 Foreign Crew 13
3.6.5 Cost to Convert from Swordfish to Tuna 14
3.6.6 Fishermen's Opinions and Demographics 14
3.6.7 Miscellaneous Fishermen's Comments 16

4. SUMMARY 16

LITERATURE CITED 17

APPENDIX 18

List of Tables

Table 1. Percentage of interviewed Hawaii longline vessels 4

Table 2. The average (std) (*n*) physical and operational characteristics of the Hawaii swordfish and tuna longline fleets in 2000 5

Table 3. The average (std) (*n*) physical and operational characteristics of Hawaii swordfish and tuna longline vessels of different sizes 7

Table 4. The 2000 average (std) (*n*) survey responses of annual fixed costs for the Hawaii swordfish and tuna longline vessels 8

Table 5. The 2000 average (std) (*n*) survey responses of annual variable costs for the Hawaii swordfish and tuna longline vessels 8

Table 6. The 2000 average (std) (*n*) survey responses of annual fixed costs for the Hawaii swordfish and tuna longline vessels 9

Table 7. The 2000 average (std) (*n*) survey responses of annual variable costs for the Hawaii swordfish and tuna longline vessels 9

Table 8. Average number of shares earned by the captain and crew of Hawaii longline vessels 10

Table 9. Estimated annual labor costs for Hawaii longline vessels 10

Table 10. The 2000 average (std) (*n*) annual revenue and costs for Hawaii-based longline fleet 11

Table 11. Corrected costs of 'other repairs in 2000' and 'misc. cost' for swordfish fleet compared to the reported costs 12

Table 12. Comparison of economic highliners to the rest of the Hawaii-based longline fleet 12

Table 13. Comparison of the average costs and revenue (thousands of dollars) from the 2000 and 1993 Hawaii cost-earning study (Hamilton et al., 1996) 13

Table 14. Reported average (std) (*n*) vessel annual loss of revenue to the Hawaii-based longline fleet because of the 2000 shark finning regulations 13

Table 15. List of items and their costs associated with converting gear from targeting swordfish to tuna 14

Table 16. Number and percentages of interviewed vessels that responded "yes" when asked the question "Do you feel that you made a reasonable living or rate of return fishing in 2000?" 14

Table 17. Number and percentages of interviewed vessels that responded "yes" when asked the question "Would you sell this vessel if you could?" 15

Table 18. Ethnicity of Hawaii longline vessel owners in 2000 15

Table 19. Hawaii longline owners' average (std) (*n*) number of years in commercial and longline fishing 15

List of Figures

Figure 1. Total number of vessels and trips 1991-2000 1

Figure 2. Ex-vessel gross revenue of Hawaii-based longline fleet 1987-2000 10

1. INTRODUCTION

A pelagic longline fishery has been operating in Hawaii since the early 1900s, although the fleet did not expand significantly until the mid-1980s through the late 1990s (Fig. 1). In 1991, the Western Pacific Regional Fishery Management Council (WPRFMC) implemented a limited-entry program that capped the number of eligible vessels at 164 to restrain the growth of the fleet. Since that time the fishery did not experience any considerable changes until 1999-2001. Before 2001, the fleet could be separated into those vessels that targeted swordfish, *Xiphias gladius*; those that targeted sashimi-grade bigeye tuna, *Thunnus obesus*, or yellowfin tuna, *Thunnus albacares;* and those that had "mixed" or "variable" fishing strategies. In 1999, protected species bycatch issues resulted in a partial closure of the area where the swordfish fishery operated (waters north of Hawaii) and ultimately a complete closure of the fishery in 2001. This required the swordfish component of the fleet to either leave Hawaii or switch target species from swordfish to tuna, which entailed changing both fishing gear and methods. Subsequently, the National Marine Fisheries Service (NMFS) also closed an area south of Hawaii from April 1 through May 31 in waters bounded on the south by the equator, on the west by longitude 180°E, on the east by longitude 145°W, and on the north by latitude 15°N to all longline vessels. The fleet suffered another setback from a state regulation concerning the landing of shark fins (June 2000) and later a federal prohibition on the finning of sharks (December 2000). All of these regulations resulted in various degrees of economic impacts on both the swordfish and tuna fleets during the period of this study.

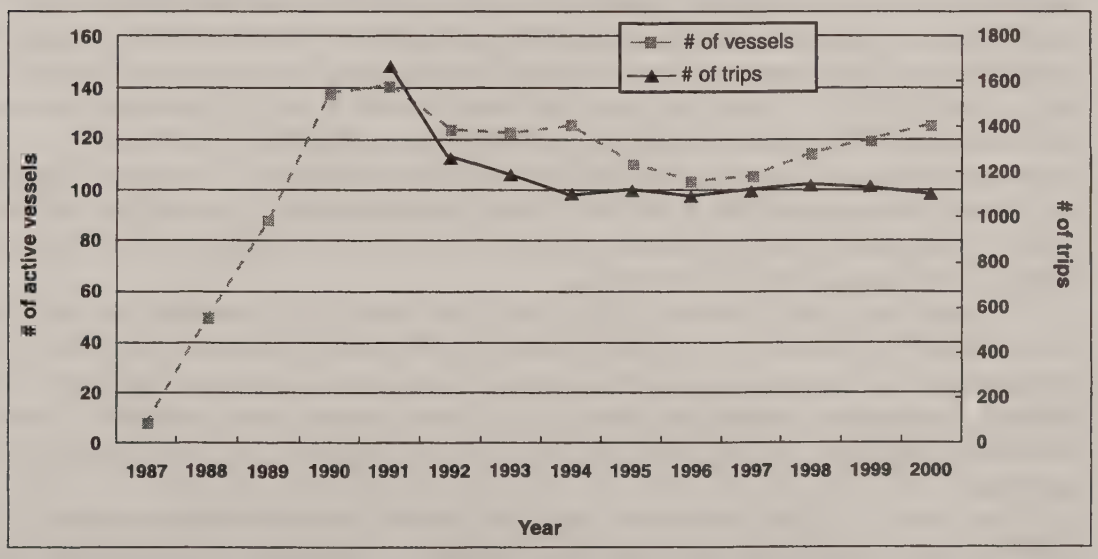


Figure 1. Total number of vessels and trips 1991-2000 (data from Ito and Machado, 2001).

The economic impact of state and federal regulations on commercial fishermen plays an increasing role in fisheries management. The Magnuson-Stevens Fishery Conservation

and Management Act,[1] the Regulatory Flexibility Act, and Executive Order 12866 require the regional fishery management councils to consider potential economic impacts of future regulations in their planning efforts. Hamilton, et al. (1996) conducted a cost/earning study of the Hawaii-based longline fleet that documented the costs associated with operating longline vessels in Hawaii during the 1993 fishing season as well as the estimated earnings of these vessels. The authors concluded that while both segments of the fleet were profitable, the amount varied according to target and vessel size. The present study was conducted to provide updated information because the fleet is now operating under considerably different conditions than in the early 1990s.

The primary objective of this study was to provide baseline economic information associated with operating a pelagic longline vessel in Hawaii in 2000. Additional objectives include documenting physical and operational characteristics of vessels, the economic impacts of the most recent regulations, fishermen's opinions on the status of the fishery, and basic demographics of the fleet. This information will assist fisheries managers when they are considering potential economic impacts of future regulations.

2. METHODS

2.1 Survey and Data Acquisition

Available vessel owners and/or operators were personally interviewed from March 2001 through January 2002 at Kewalo Basin and Honolulu Harbor. Any Hawaii longline permitted vessel that fished in 2000 and was in port during this time period was approached. Survey questions focused on variable costs (costs incurred when the vessel actively fished) and fixed costs (costs occurred regardless of the number of trips the vessel took) as well as vessel characteristics, demographics, fishermen's comments, and the economic effects of recent management changes because of protected species issues (Appendix 1). After vessel-specific information was entered into the database, a copy of the entered data was returned to the individual who participated in the interview in order to identify information that may have been misinterpreted or entered incorrectly. Commercial fishing industry members were also interviewed and provided pertinent ancillary information on the longline fleet.

Revenue and landing information for vessels that landed in Hawaii was obtained from the Hawaii Department of Aquatic Resources (HDAR). Receipts from California Department of Fish and Game (CDFG) were used to generate revenue information for Hawaii vessels that landed their fish in California (some Hawaii swordfish vessels 'follow' swordfish and fish out of Hawaii in the winter and out of California in the summer).

Commercial logbook information, including vessel operational characteristics and activity, was provided by NMFS, Honolulu Laboratory. This information, however, was acquired only for vessels that landed in Hawaii and submitted a Hawaii Longline Logbook for that trip. Logbook information was not acquired for vessels that landed in

[1] SEC. 303 Contents of Fishery Management Plans 16 U.S.C. 1853 95-354, 99-659, 101-627, 104-297. (a) Required Provisions. – Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery shall—(2) contain a description of the fishery, including,...the cost likely to be incurred in management, actual and potential revenues from the fishery...

California. Vessel length and age were acquired from the NMFS, Fisheries Statistics and Economics Division database (www.st.nmfs.gov/commercial/index.html).

2.2 Fishing Expenditures and Data Analysis

Vessels were classified based on overall length (small <56 ft, medium = 56.1 ft to 73.9 ft, large ≥ 74 ft) and target species (tuna or swordfish). Past analysis of the Hawaii-based longline fleet (Hamilton et al., 1996) included mixed trips ("catch whatever you can") and variable trips (trips in which the target varied by trip) as well as tuna and swordfish in their vessel classification. This report classified mixed and variable trips as swordfish vessels because vessels that made these types of trips fished as if they were targeting swordfish (shallow gear deployment, four hooks/float, squid as bait).

All cost information in this study was provided by fishermen during interviews, and only these vessels were used in the costs and earnings evaluations. Specific cost information that was missing from individual vessels, either because of incomplete interviews or values outside reasonable ranges, was not replaced using averages of costs from similar vessels. This is important to note because the 1993 cost/earnings study of Hawaii longline vessels used that approach (Hamilton et al., 1996).

Annual repairs, although somewhat dependent on the number of trips, were considered fixed costs. Capital costs were calculated at current market rates of 7.5% of the value of the vessel (purchase price + cost of major additions to prepare vessel to longline) as reported by the fishermen. Capital costs serve as an economic replacement for finance costs, which can vary dramatically among vessels due to vessel age, most recent year of purchase, and financing arrangements. Daily maintenance costs include minor engine repair, spot painting, and replacement of hoses, wire, and line. Sales costs include shipping and auction fees (e.g., United Fishing Agency, the primary outlet for longline caught fish, charges vessels a percentage of fish sales).

Other annual fixed costs were reported as such by fishermen. All variable trip costs (e.g., fuel, oil, ice, bait, daily maintenance) that were reported on a trip basis were annualized by multiplying the cost per trip by the number of trips the vessel made during 2000.

2.3 Labor Costs

In 2000, the majority of the interviewed vessel owners were paying the captain and crew using the share method. First, specific expenditures such as fuel, oil, ice, bait, provisions, gear, and auction fees were deducted from the gross revenue. The remaining revenue was then split in half, 50% for crew and 50% for the vessel owner. The captain and individual crew pay was determined by calculating the per-share dollar amount then multiplying by the number of shares each crewmember earned. Only vessels on which the crew was paid in this manner were included in the calculation of the labor costs.

At the time of the interviews, six vessels were using foreign crewmembers, primarily from the Philippines. The captain was paid using the share method described above, but the crew earned a monthly salary. In addition to salary there are other expenses associated with hiring foreign crew, such as agency and immigration fees, airfare, and supplying the necessary fishing and personnel gear for each crewmember. An analysis

was conducted comparing the labor costs of vessels paying their crew shares with those paying a fixed salary.

3. RESULTS AND DISCUSSION

3.1 Interviews

Seventy-four vessels were approached, of which 62 (82%) agreed to provide information by interviews. This amounts to 50% of the entire fleet. The number of vessels by target and category and the number interviewed in each are provided in Table 1. Collecting information from many of the swordfish vessels was difficult because most of the potential interviewees were Vietnamese-American who spoke limited or no English. Additionally, swordfish vessel operators change frequently, and the vessel owners were difficult to identify and find to interview. As a result, the percent coverage of the swordfish component of the fleet was less than for the tuna component.

Table 1. Percentage of interviewed Hawaii longline vessels. Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

Vessel classification	Number interviewed	Total number	Percent interviewed
Swordfish	19	51	37
Tuna	43	72	60
Small tuna	11	16	69
Medium tuna	24	37	65
Large tuna	8	19	42
Medium swordfish	9	18	50
Large swordfish	10	33	30
Fleet total	62	123	50

3.2 Physical and Operational Characteristics

The physical and operational characteristics of the vessels varied according to their target species (Tables 2 and 3). Swordfish vessels were newer and larger and had greater fuel and fish hold capacity as well as ice-making capabilities than tuna vessels. Differences in operational characteristics were also found. Swordfish vessels traveled a greater distance to the fishing grounds, set their gear at dusk and hauled at dawn, averaged four hooks/float, set the gear close to the surface, used squid of various species as bait, and averaged 15 sets/trip. Tuna vessels set at dawn, hauled at dusk, averaged 29 hooks/float, fished deeper (100% of tuna vessels used a line shooter), used sanma (*Cololabis saira*) or sardine (*Sardinops sagaxas*) as bait, purchased ice prior to each trip, and averaged 11 sets/trip.

3.3 Costs

During the interviews it became apparent that some of the individuals were unaware of specific expenses, but they indicated that costs were incurred. The known costs

relayed during the interviewing are listed in Tables 4, 5, 6, and 7. It is important to note that the fleet-specific averages presented do not include zero or unknown costs.

Table 2. The average (std) (*n*) physical and operational characteristics of the Hawaii swordfish and tuna longline fleets in 2000.

	Swordfish			Tuna		
	Average	**Std**	***N***	**Average**	**Std**	***N***
Physical Characteristics						
Vessel age (years)+	**14**	4.1	18	**23**	14.2	42
Overall length (feet)+	**74**	5.8	18	**65**	12.9	42
Fuel capacity (gallons)	**12,705**	8,352	18	**9,228**	6,487	43
Fish hold capacity (lbs)	**37,765**	11,525	17	**33,967**	14,817	42
Main engine horsepower	**413**	56	18	**368**	117	40
Fuel/day travel (gal)	**285**	95	8	**240**	113	38
Operational Characteristics						
Number of trips/yr*	**10**	3.0	19	**11**	3.5	43
Number of sets/trip*	**15**	4	50	**11**	2	72
Number of hooks/float	**4.4**	0.7	12	**29**	3.6	43
Number of hooks/set	**932**	132	12	**2,069**	642	43
Mainline deployed/set (miles)	**45**	5.3	14	**33**	7	43
Miles to sets from Honolulu*	**730**	226	50	**462**	167	72

+ = data from NMFS website
* = data from NMFS logbooks

On average, captains earned 2 shares, and individual crewmembers earned from 0.9 to 1.4 shares depending on experience (Table 8). In 2000, tuna vessel captains and crew earned more than those on swordfish vessels did (Table 9), but because pay is determined by catch, this is a reflection of greater tuna revenues.

Labor was the most costly expense for all vessels, with fuel the most costly variable expense for swordfish vessels. The most costly variable expense for tuna vessels depended on vessel size: bait for small, sales fee for medium, and fuel for large. It is not surprising that the large tuna vessels had a greater cost for fuel given the larger size of the vessels and the engines.

3.4 Revenue

In 2000, the Hawaii-based longline fleet landed an estimated $50 million (ex-vessel) of fish, an increase of $3 million from 1999 (Ito and Machado, 2001) (Fig. 2). In 2000, the interviewed swordfish vessels earned a gross revenue of $490,301, and tuna vessels earned $495,456. Large swordfish vessels earned the highest gross revenue ($526,277) followed by small tuna vessels ($502,740).

3.5 Income Statements

Only vessels that were interviewed are included in the final income statements, which include fixed costs, variable costs, labor costs, and gross and net revenue (Table 10). These tables were calculated by including zero costs in the calculated averages for each vessel target and classification. It is important to note that the swordfish fleet 'other repairs in 2000' and 'miscellaneous costs' were unusually low especially when compared to the tuna fleets' values. This may be a function of the swordfish fleets' frequent habit of changing captains who were unaware of these costs in 2000, so these values were replaced by the values reported by the tuna fleet (Table 11). Examination of these specific expenditures did not reveal any to be specific to the tuna fleet and are therefore acceptable replacements. These values are incorporated into the income statement tables as 'fixed costs' and all swordfish costs and net revenues are herein reported using this corrected value.

Swordfish and tuna vessels earned a net return of $27,484 and $55,058, respectively. Among the tuna vessels, the small vessels were the most profitable. These vessels had higher gross revenues and, consequently, higher labor costs but lower fixed and variable costs. Large swordfish vessels were more profitable than smaller swordfish vessels, which is due to the higher gross revenues.

Table 3. The average (std) (*n*) physical and operational characteristics of Hawaii swordfish and tuna longline vessels of different sizes. Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

	Vessel classification														
	Small tuna			*Medium tuna*			*Large tuna*			*Medium swordfish*			*Large swordfish*		
	Avg	*std*	*N*	*Avg*	*std*	*N*	*Avg*	*std*	*N*	*Avg*	*std*	*N*	*Avg*	*std*	*N*
Physical characteristics															
Vessel Age (years)+	**25**	11.5	10	**23**	15.3	24	**20**	15.1	8	**14**	2.5	8	**14**	5.1	10
Overall length (feet)+	**48**	4.5	10	**66**	4.6	24	**84**	8.9	8	**69**	4.3	8	**78**	3.1	10
Fuel capacity (gallons)	**3,573**	1,867	11	**9,033**	4,289	24	**17,588**	7,536	8	**8,562**	904	8	**16,020**	10,181	10
Fish hold capacity (lbs)	**25,873**	12,372	11	**34,913**	10,532	23	**42,375**	23,065	8	**30,250**	10,687	8	**44,444**	7,683	9
Main engine horsepower	**242**	85	9	**374**	78	23	**492**	105	8	**400**	55	8	**424**	57	10
Fuel/day travel (gal)	**139**	31	10	**233**	63	20	**384**	130	8	**238**	48	4	**332**	112	4
Operational characteristics															
Number of trips/yr*	**12**	5	11	**11**	2.8	24	**12**	2.8	8	**11**	2.9	9	**8**	2	9
Number of sets/trip*	**11**	2	16	**11**	2	37	**11**	2	19	**13**	4	18	**16**	4	32
Number of hooks/float	**29**	1.9	11	**29**	4.1	24	**30**	3.8	8	**4**	0.7	7	**4**	0.5	5
Number of hooks/set	**1,769**	479	11	**2,116**	655	24	**2,338**	710	8	**912**	127	7	**959**	148	5
Mainline deployed/set (mi)	**30**	9	11	**34**	6	24	**36**	5	8	**42**	4	8	**48**	5	6
Miles to sets from Honolulu*	**284**	112	16	**491**	150	37	**555**	123	19	**575**	239	18	**817**	167	32

+ = data from NMFS website
* = data from NMFS logbooks

Table 4. The 2000 average (std) (*n*) survey responses of annual fixed costs for the Hawaii swordfish and tuna longline vessels. All values are US$.

	Swordfish			Tuna		
Item	**Average**	**std**	***N***	**Average**	**std**	***N***
Capital costs	**24,505**	10,848	11	**23,194**	9,027	36
vessel purchase cost	**228,864**	168,609	11	**216,528**	102,871	36
additions for longlining	**100,273**	109,682	11	**94,786**	63,749	42
Insurance	**20,347**	6,658	17	**24,960**	10,900	37
Bookkeeping/Accounting	**1,498**	1,634	9	**2,607**	2,397	32
Mooring	**5,182**	4,522	15	**4,332**	2,851	38
Overhaul	**3,018**	2,509	14	**5,362**	3,006	37
Dry dock	**7,058**	5,048	11	**5,363**	3,441	37
Other repairs in 2000	**4,000**	0	1	**28,295**	30,862	19
Misc. costs	**400**	1,697	18	**12,373**	42,998	43
TOTAL	**66,008**			**106,486**		

Table 5. The 2000 average (std) (*n*) survey responses of annual variable costs for the Hawaii swordfish and tuna longline vessels. All values are US$.

	Swordfish			Tuna		
Item	**Average**	**std**	***N***	**Average**	**std**	***N***
Fuel	**60,933**	21,165	18	**40,342**	20,444	42
Oil	**2,016**	1,088	18	**1,860**	1,452	42
Ice	**10,857**	12,151	15	**13,692**	8,298	43
Bait	**47,810**	18,793	18	**32,898**	18,725	43
Lightsticks	**28,058**	17,487	15	**0**	0	0
Provisions	**16,044**	5,701	18	**13,525**	5,311	43
Gear resupply	**16,462**	9,869	16	**12,782**	7,215	42
Daily maintenance	**10,970**	8,091	15	**15,401**	16,064	35
Fish processing	**365**	139	4	**1,465**	1,267	6
Communications	**14,900**	1,353	3	**26,750**	18,312	14
Sales	**34,518**	1,299	49	**45,573**	18,630	69
TOTAL	**242,933**			**204,288**		

Table 6. The 2000 average (std) (*n*) survey responses of annual fixed costs for the Hawaii swordfish and tuna longline vessels. All values are US$. Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

	Vessel classification													
	Small tuna			Medium tuna			Large tuna			Medium swordfish			Large swordfish		
Item	**Avg**	**std**	***N***	**Avg**	**std**	***N***	**Avg**	**std**	***N***	**Avg**	**std**	***N***	**Avg**	**std**	***N***
Capital costs	**16,151**	7,695	10	**23,978**	8,117	19	**31,125**	5,565	7	**21,600**	7,525	7	**29,588**	14,996	4
vessel purchase cost	**140,600**	92,827	10	**213,895**	69,955	19	**332,143**	94,334	7	**162,500**	93,642	7	**345,000**	221,284	4
additions for longlining	**82,500**	56,247	11	**101,674**	64,999	23	**91,875**	74,849	8	**125,000**	132,946	7	**57,000**	28,775	4
Insurance	**23,318**	10,679	8	**23,075**	11,792	21	**31,550**	6,021	8	**16,857**	4,488	7	**22,790**	7,019	10
Bookkeeping/Accounting	**1,903**	726	8	**2,677**	2,644	18	**3,333**	3,112	6	**1,556**	1,934	5	**1,425**	1,457	4
Mooring	**4,854**	4,054	10	**4,396**	2,589	21	**3,393**	1,283	7	**6,829**	5,697	8	**3,300**	1,450	7
Overhaul	**3,640**	1,387	11	**5,882**	3,466	19	**6,654**	2,593	7	**1,917**	406	5	**3,630**	2,995	9
Dry dock	**4,333**	2,625	10	**5,782**	3,957	21	**5,611**	2,697	6	**5,524**	3,783	6	**8,900**	6,168	5
Other repairs in 2000	**16,151**	11,263	4	**42,778**	39,847	9	**14,667**	9,688	6	**0**	0	0	**4,000**	0	1
Misc. costs	**6,719**	15,004	11	**10,757**	41,024	24	**25,000**	70,711	8	**0**	0	0	**720**	2,277	10
TOTAL	**77,069**			**119,325**			**121,333**			**54,283**			**74,353**		

Table 7. The 2000 average (std) (*n*) survey responses of annual variable costs for the Hawaii swordfish and tuna longline vessels. All values are US$. Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

	Vessel classification													
	Small tuna			Medium tuna			Large tuna			Medium swordfish			Large swordfish		
Item	**Avg**	**std**	***N***	**Avg**	**std**	***N***	**Avg**	**std**	***N***	**Avg**	**std**	***N***	**Avg**	**std**	***N***
Fuel	**24,585**	18,147	11	**42,003**	17,649	23	**57,301**	16,377	8	**64,133**	23,679	8	**58,374**	19,842	10
Oil	**1,264**	729	11	**1,718**	1,030	23	**3,089**	2,431	8	**2,413**	1,304	8	**1,699**	812	10
Ice	**9,224**	5,149	11	**14,106**	5,526	24	**18,591**	14,682	8	**15,587**	16,592	7	**6,719**	4,168	8
Bait	**26,110**	19,014	11	**34,982**	18,675	24	**35,979**	18,528	8	**56,807**	21,270	8	**40,613**	13,628	10
Lightsticks	**0**	0	0	**0**	0	0	**0**	0	0	**25,244**	13,311	7	**30,521**	2,1091	8
Provisions	**11,064**	5,619	11	**13,992**	4,775	24	**15,506**	5,871	8	**16,794**	7,494	8	**15,445**	4,102	10
Gear resupply	**14,199**	9,912	10	**10,506**	5,325	24	**17,838**	5,968	8	**16,800**	14,276	6	**16,260**	6,998	10
Daily maintenance	**8,349**	6,593	8	**13,631**	10,193	21	**30,999**	29,892	6	**7,542**	8,138	6	**13,255**	7,648	9
Fish processing	**1,100**	0	1	**420**	255	2	**2,283**	1,348	3	**305**	205	2	**425**	35	2
Communications	**25,704**	23,950	5	**29,797**	18,434	6	**22,400**	11,134	3	**13,500**	0	1	**15,600**	849	2
Sales	**40,924**	21,534	15	**44,516**	17,552	35	**51,190**	17,754	19	**32,844**	14,473	17	**35,408**	12,296	32
TOTAL	**162,523**			**205,671**			**255,176**			**251,969**			**234,319**		

Table 8. Average number of shares earned by the captain and crew of Hawaii longline vessels. Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

	Average number of shares						
Crewmember	Tuna	Small tuna	Medium tuna	Large tuna	Swordfish	Medium swordfish	Large swordfish
Captain	1.8	2.1	1.9	2	2.3	1.75	1.8
1	1.4	1.05	1	1.05	1	1	1.8
2	1.3	1.02	1	1.06	1	1	1.6
3	1.3	1	1	1.1	1	1	1.6
4	1	1	-	1.1	1	1	0.9
5	-	-	-	-	1	-	-

Table 9. Estimated annual labor costs for Hawaii longline vessels. All values are US$. Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

Vessel	Per share	Captain	Crew	Total labor
Swordfish	20,497	36,894	102,485	139,379
Tuna	26,712	56,096	108,719	164,815
Small tuna	38,303	72,776	114,909	187,685
Medium tuna	26,526	53,052	114,326	167,378
Large tuna	19,575	45,022	97,874	142,896
Medium swordfish	19,899	34,824	79,598	114,422
Large swordfish	20,860	37,547	123,072	160,619

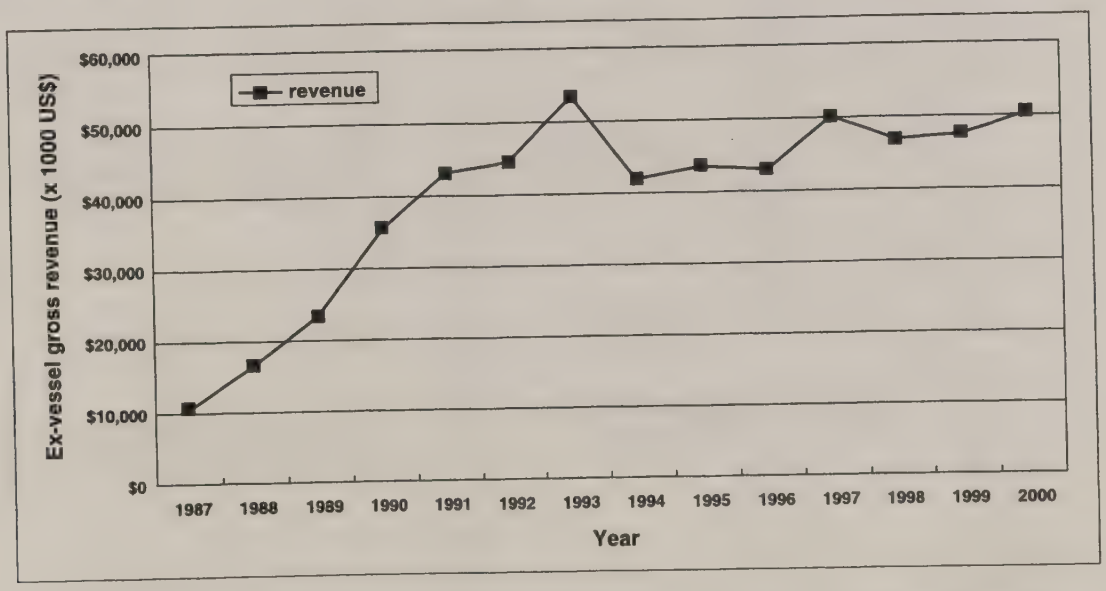


Figure 2. Ex-vessel gross revenue of Hawaii-based longline fleet 1987-2000 (data from Ito and Machado, 2001).

Table 10. The 2000 average (std) (*n*) annual revenue and costs for Hawaii-based longline fleet All values are US$. Vessels are classified by target and by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

	Target		Vessel classification				
Statement	**Swordfish average**	**Tuna average**	**Small tuna average**	**Medium tuna average**	**Large tuna average**	**Medium swordfish average**	**Large swordfish average**
Gross revenue+	490,301	495,456	502,740	496,578	485,286	459,465	526,277
Fixed costs total *	93,207	90,597	66,409	93,056	84,433	81,520	105,633
Variable costs total *	230,232	184,986	147,503	182,868	239,749	239,928	221,449
Labor*	139,379	164,815	187,685	167,378	142,896	114,422	160,619
Total costs	462,818	440,398	401,597	443,302	467,078	435,870	487,701
Net Revenue [€]	**27,483**	**55,058**	**101,143**	**53,276**	**18,208**	**23,595**	**38,576**

Source data: + Hawaii Dept. of Aquatic Resources
* Survey information
[€] Derived

Table 11. Corrected costs of 'other repairs' in 2000 and 'misc. cost' for swordfish fleet compared to the reported costs. Values are from '0'-added estimated costs. Corrected costs are based on the estimated averages of tuna vessels of similar size.

	Swordfish		Medium swordfish		Large swordfish	
Statement	**Reported**	**Corrected**	**Reported**	**Corrected**	**Reported**	**Corrected**
Other repairs in 2000	333	13,870	0	16,739	8,900	11,000
Misc. cost	400	17,879	0	10,757	571	25,000
Total fixed costs	62,191	93,207	54,024	81,520	70,924	105,633
Total costs	431,802	462,818	408,374	435,870	452,992	487,701
Net revenue	**58,499**	**27,483**	**51,091**	**23,595**	**73,285**	**38,576**

3.6 Miscellaneous Economic Analysis

3.6.1 Highliners. Economic highliners, the three vessels within each category that had the highest net returns in 2000, earned approximately $300,000 more than the rest of the fleet in net returns (Table 12). In the case of small tuna and medium swordfish vessels the average net revenue of the rest of that component of the fleet was negative.

Table 12. Comparison of economic highliners to the rest of the Hawaii-based longline fleet. All values are US$. 'Rest of fleet' is the revenue after the top three earning vessels are removed. Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

	Average annual net revenue	
Vessel	**Highliners**	**Rest of fleet**
Swordfish	322,652	25,761
Tuna	376,617	62,464
Small tuna	287,989	-1,440
Medium tuna	275,124	33,367
Large tuna	319,555	19,188
Medium swordfish	213,290	-33,791
Large swordfish	328,585	73,819

3.6.2 Comparison with the 1993 cost-earning study. A comparison of this study and the 1993 cost-earning study (Hamilton et al., 1996) is shown in Table 13. A striking difference between the two studies is the amount of gross revenue generated by the tuna fleet, with the 2000 fleet having substantially higher gross returns and therefore higher net revenue. To a certain extent this may reflect the transition of some larger swordfish and mixed target vessels that began targeting tuna in the late 1990s. The curtailing of the swordfish fleet in late 2000 may be responsible for the decrease in the swordfish vessels' gross revenue compared to 1993 and possibly variable costs. In addition, many of the most expensive swordfish vessels left the fishery in the mid-1990s (S. Pooley, unpublished data).

3.6.3 Shark finning ban. Prior to June 2000, swordfish and tuna vessels were actively taking shark fins. The ban on shark finning resulted in a loss primarily to crewmembers because, in most cases, the revenue generated from the sales went directly to the crew, not the vessel. The approximate annual loss of revenue per tuna vessels was $10,652 (Table 14). This equates to

approximately 10% of the annual pay to tuna crews, which is similar to the percentages estimated by McCoy and Ishihara (1999). The approximate annual loss of revenue per swordfish vessel was $20,435, and this equaled 20% of the annual pay to swordfish crew.

Table 13. Comparison of the average costs and revenue (thousands of dollars) from the 2000 and 1993 Hawaii cost-earning study (Hamilton et al., 1996).

	Swordfish		Tuna	
Statement	**1993 avg. ($1000)**	**2000 avg. ($1000)**	**1993 avg. ($1000)**	**2000 avg. ($1000)***
Gross revenue	633	490	355	495
Fixed costs	127	93	89	91
Variable costs	356	230	133	185
Labor costs	139	139	113	165
Total costs	622	462	335	441
Net revenue	**11**	**27**	**20**	**55**

* Corrected cost

Table 14. Reported average (std) (*n*) vessel annual loss of revenue to the Hawaii-based longline fleet because of the 2000 shark finning regulations. All values are US$. Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

	Average annual loss of revenue		
Vessel classification	**Average**	**Std**	***N***
Swordfish	20,435	14,618	7
Tuna	10,947	5,660	29
Small tuna	7,656	4,050	8
Medium tuna	11,684	4,343	16
Large tuna	13,850	9,513	5
Medium swordfish	20,663	18,285	4
Large swordfish	20,133	11,801	3

3.6.4 Foreign crew. A recent trend, which affects the cost of operating a longline vessel, is the hiring of foreign crew, primarily from the Philippines. These crewmembers are paid a monthly salary, and in some cases a tonnage or captain's bonus. There are also agency, crew, and immigration fees associated with the hiring of foreign crew. During 2000, only six interviewed vessels employed foreign crews. During the interviews (2001) the type of crew presently employed was noted. It is estimated that currently over 54% of the vessels employ foreign crew.

An analysis was conducted comparing the annual costs to pay crew using the shares (crew gets a portion of the catch revenue) and those that paid a fixed salary. The 2000 fleet average annual cost using the crew shares method was $152,097 and the annual cost to pay the crew a monthly salary was $44,333.

Vessels that changed from local to foreign crews were asked what motivated them to switch. Three answers were given, corresponding to the ethnicity of the vessels' owners. Korean-Americans stated the foreign crewmembers were easy to work with; Caucasian-Americans found foreign crew to be cheaper than local crew; and Vietnamese-Americans switched because they could not find Vietnamese-American crew who wanted to fish for tuna.

3.6.5 Cost to convert from swordfish to tuna. Swordfish vessels that stayed in Hawaii after the swordfish ban were forced to target tuna, which entailed converting their gear. Because bigeye and yellowfin tuna are fished deeper than swordfish, tuna gear is considerably heavier; hence most of the swordfish gear was rendered useless. The cost to purchase new gear was approximately $35,925 per vessel not including the labor to assemble the gear (Table 15).

3.6.6 Fishermen's opinions and demographics. Fishermen were asked two questions in order to determine in general terms how profitable their vessels were in 2000. The first question was "Do you feel that you made a reasonable living or rate of return fishing in 2000?" Within the vessel classification category only the large vessels (tuna and swordfish) replied "yes" less than 50% of the time (Table 16). Fishermen were also asked, "Would you sell this vessel if you could?" Within the vessel classification category only the small tuna vessels replied "yes" less than 50% of the time (Table 17). It is interesting to note that the small tuna vessels were the most profitable, indicating overwhelmingly that 2000 was a profitable year. These owners were the least likely to sell their vessels.

Table 15. List of items and their costs associated with converting gear from targeting swordfish to tuna.

Item	Quantity	Cost per unit (US$)	Total cost/Item (US$)
Line shooter	1 + hydraulics	7,000	7,000
Mainline	40 miles	320	12,800
Buoys	110	35	3,850
Floatline	-	-	1,500
Branchline	-	-	1,720
Wire leader	-	400	400
Snap swivels	1,500	1	1,500
Weights	2,500	.70	1,750
Hooks	2,500	1	2,500
Sleeves	35 bags	35	1,225
Vinyl tubes	4 bags	20	80
Side roller	1	1,600	1,600
TOTAL COST			**35,925**

Table 16. Number and percentages of interviewed vessels that responded "yes" when asked the question "Do you feel that you made a reasonable living or rate of return fishing in 2000?" Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

Vessel	number yes	*N*	% yes
Fleet	32	62	52
Swordfish	8	19	42
Tuna	24	43	56
Small tuna	9	11	82
Medium tuna	12	24	50
Large tuna	3	8	38
Medium swordfish	6	9	67
Large swordfish	2	10	20

Table 17. Number and percentages of interviewed vessels that responded "yes" when asked the question "Would you sell this vessel if you could?" Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

Vessel	number yes	*N*	% yes
Fleet	33	62	53
Swordfish	20	43	47
Tuna	13	19	68
Small tuna	3	11	27
Medium tuna	13	24	54
Large tuna	4	8	50
Medium swordfish	6	9	67
Large swordfish	7	10	70

The basic demographics of the Hawaii-based longline fleet are presented in Table 18. The fleet was comprised of Korean-Americans fishing for tuna; Caucasian-Americans fishing for tuna; and Vietnamese-Americans, who were primarily swordfish fishermen but also fished for tuna. Tuna fishermen had more general commercial fishing and longlining experience than swordfish fishermen (Table 19).

Table 18. Ethnicity of Hawaii longline vessel owners in 2000. Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

Vessel	Caucasian (%)	Korean-American (%)	Vietnamese-American (%)	*N*
Fleet	27	30	43	120
Swordfish	6	0	94	70
Tuna	41	53	6	50
Small tuna	31	64	6	16
Medium tuna	31	64	6	36
Large tuna	72	22	6	18
Medium swordfish	11	0	89	18
Large swordfish	3	0	97	32

Table 19. Hawaii longline owners average (std) (*n*) number of years commercial and longline fishing. Vessels are classified by size (small <56 ft, medium = 56.1 ft to 73.9 ft, large >74 ft) and target (tuna or swordfish).

Vessel	Years commercial fishing			Years longlining		
	Average	std	*N*	Average	std	*N*
Fleet	**21**	13	60	**13**	10	60
Swordfish	**11**	9	18	**5**	6	18
Tuna	**25**	12	42	**17**	9	42
Small tuna	**30**	7	11	**21**	6	11
Medium tuna	**21**	14	24	**15**	10	24
Large tuna	**29**	9	7	**16**	11	7
Medium swordfish	**12**	10	8	**8**	6	8
Large swordfish	**11**	8	10	**4**	5	10

3.6.7 Miscellaneous fishermen's comments. The most common comments made by fishermen centered around the current state of fisheries management. Many were upset that federal courts were making fisheries-related decisions instead of WPRFMC. Many were also concerned that the required documents (Environmental Impact Statements, Biological Opinions) were being rushed to completion and were not conducted using the best available science. Fishermen would like to see science and industry work together, especially on solving the protected species interaction problems.

Fishermen were unhappy about the closure of the swordfish fishery. Many felt it was unfair that U.S. vessels were no longer allowed to fish, but foreign vessels could still operate in the same areas. Swordfish fishermen stated that while they do catch some turtles, most are released alive because their gear is close enough to the surface to allow turtles to breathe. Many tuna fishermen expressed consternation over the time/area closure. They indicated that because they do not catch turtles or seabirds they felt that they were being unjustly punished along with the swordfish vessels.

Fishermen expressed disappointment at the prohibition on shark finning. They remarked that sharks damage fishing gear and catch and, therefore, have a negative economic impact on the vessel. Many stated that the regulation does nothing to protect sharks. Two fishermen thought the regulation would result in the influx of more sharks and more shark attacks on people, specifically in Waikiki Beach, although there is no evidence to that.

Many fishermen also expressed an interest in economic assistance from the state and federal governments, IFQs, or vessel buyback programs using federal funds or money generated by the industry.

4. SUMMARY

Most Hawaii longline vessels experienced a positive net return in 2000. Small tuna vessels were the most profitable primarily because of low fixed and variable costs. Larger tuna vessels accrued higher costs (specifically variable costs), but this did not necessarily result in higher gross revenue. Larger swordfish vessels did accrue higher costs but experienced higher catch rates than smaller swordfish vessels and therefore had higher net revenue.

All vessels that fished during 2001 received economic assistance from the direct economic assistance program because of the sudden impact of the regulations. Tuna vessels received $16,000, but swordfish vessels received $32,000 because the new regulations had a greater impact on their operations. It is interesting to note that the amount given to the swordfish vessels would cover 89% of the estimated cost to convert to tuna fishing.

The year 2000, although profitable for most vessels, brought considerable changes to the Hawaii-based longline fleet. The shark finning ban resulted in an economic loss to almost all vessels' crews. The swordfish vessels suffered economically because of both the reduction in effort and the cost to convert their fishing gear. Swordfish vessels that did switch to targeting tuna are experiencing an immeasurable economic loss while learning to fish for tuna. Many fishermen indicated that they did not expect 2001 to be as profitable as 2000, with some even expecting a loss.

LITERATURE CITED

Hamilton, M. S., R. E. Curtis, and M. D. Travis. 1996. Cost-earning study of the Hawaii-based domestic longline fleet. SOEST 96-03. JIMAR Contribution 96-300.

Ito, R.Y., and W. A Machado. 2001. Annual report of the Hawaii-based longline fishery for 2000. Honolulu Lab., Southwest Fish. Sci. Cent. Natl. Mar. Fish. Serv., NOAA, Honolulu, HI 96822-2396. Southwest Fish. Sci. Cent. Admin. Rep. H-01-07, 56 p.

McCoy, M.A., and H. Ishihara. 1999. The socioeconomic importance of sharks in the U.S. Flag Areas of the western and central Pacific. National Marine Fisheries Service, Southwest Region, Administrative Report AR-SWR-99-01. 119 p.

APPENDIX 1

HAWAII LONGLINE QUESTIONNAIRE

Vessel:_____

Date:_____

Interviewee:_____

Position:_____

Logbook information:

# tuna trips for 2000:	# swordfish trips for 2000:	# mixed trips for 2000:
HI_____	HI_____	HI_____
CA_____	CA_____	CA_____

VESSEL INFORMATION

1. **Year bought:** _____
2. **Purchase price:** $_____
   - **2.a. Were any permits included:**

     no yes
   - **2.b. if yes, which permits?**

     _____

     _____
   - **2.c. If a Hawaii longline permit was not included with the vessel how much did the permit cost?**

     $_____; **2.d. year purchased**_____
3. **Year the vessel was built:** _____
4. **Insured value of the vessel in 2000:** $_____
5. **Ownership of vessel** *(please check)*:

   sole owner_____

   partnership with family member_____

   partnership with someone outside family_____

   corporation with no outside stock holders_____

   corporation with outside stock holders_____

   S corporation_____

   leased from another owner_____

   hui or other informal organization (describe)_____

   other (describe)_____

This survey focuses on your operations in 2000, so if you can try to remember how you operated in 2000 that would be helpful. If any of the answers changed mid year due to the federal judge's decision please specify and clarify as to what these changes were.

6. **Cost of major additions (not replacements) since purchase (i.e. ice maker, electronics, bigger engine, bait shack).**

   $_____ **total since purchased**

6.a. What was added and cost: _____ $_____

HI LL startup costs:_____ $_____

_____ $_____

_____ $_____

_____ $_____

7. **Hold capacity: How many pounds of fish (target species + typical amount of incidental catch) with ice can your vessel hold?**

   tuna trip: _____lbs.

   swordfish trip: _____lbs.

   mixed: _____lbs.

8. **Number and horsepower of engines:**

   engine 1; horsepower _____

   engine 2; horsepower _____

9. **Fuel capacity:** _____gallons

10. **Average fuel use:**

traveling:

tuna trip _____gallons per **hour** or **day** *(please circle).*

swordfish trip _____gallons per **hour** or **day** *(please circle).*

mixed trip _____gallons per **hour** or **day** *(please circle).*

fishing:

tuna trip _____gallons per **hour** or **day** *(please circle).*

swordfish trip _____gallons per **hour** or **day** *(please circle).*

mixed trip _____gallons per **hour** or **day** *(please circle).*

FISHING GEAR

11. **Number of reels aboard in 2000:** _____reels

11.a. number of reels used in 2000: _____reels

12. Did you use an icemaker in 2000? *(Please circle)*

no yes:

12.a. if yes, which type: saltwater

freshwater

mixed

13. In 2000 did you use:

depth sounder _____ single sideband radio _____

temperature sensor _____ VHF radio _____

direction finder _____ cellular phone _____

radar _____ telex _____

doppler _____ comsat _____

video plotter _____ osam _____

GPS _____ weather fax _____

HI PLOT _____ autopilot ____

other electronics (list)_____

_____

Can you estimate the total purchase price of these electronics? $_____

14. Did you use a lineshooter in 2000? *(please circle)*

no yes

15.a. if yes, purchase date: _____

16. Number of miles of line used during a typical set in 2000:

tuna set: _____miles.

swordfish set: _____miles.

mixed set: _____miles.

17. Number of floats used during a typical set in 2000:

tuna set: _____floats.

swordfish set: _____floats.

mixed set: _____floats.

18. Number of hooks between floats during a typical set in 2000.

tuna set: _____hooks.

swordfish set: _____hooks.

mixed set: _____hooks.

FISHING STRATEGY

19. Species targeted in 2000 *(please check all that apply)*:

Tuna: bigeye _____ yellowfin _____ albacore _____

Swordfish_____

Mixed (every trip is mixed, varies by set)_____

Do the hooks per float change? when? _____

Varies by trip or season _____

specifically_____

Other *(please describe)*_____

20. What factors determined your target species in 2000? *(please top five factors)*:

season (location of fish) ___ equipment cost ___

season (abundance of fish) ___ price is steady ___

season (weather) ___ catch is steady ___

variable costs are lower ___ vessel limitations ___

have gear for that target ___ trips are shorter ___

confidence about number of fish you will catch ___ experience ____

want to catch the most fish possible ___ expected price ___

new regulations_____

other: _____

COST OF LONGLINE FISHING

For questions 21-27, please answer for species you primarily targeted in 2000.

21. What was your primary target in 2000? *(please check)*

tuna:_____

swordfish:_____

mixed:_____

Approximate trip costs when targeting primary species. Please complete the following tables. Use an approximate average for the year 2000.

22. Fuel, engine oil, and ice used on a typical trip when targeting primary species:

cost	price	# per trip	total cost
fuel	avg. $ _____ gallon max. $ _____ gallon	_____ gallons	$ _____
engine oil	avg. $ _____ gallon max. $ _____ gallon	_____ gallons	$ _____
ice	avg. $ _____ gallon max. $ _____ gallon	_____ gallons	$ _____

23. Bait and lightsticks for typical trip when targeting primary species:

cost	price	# per trip	total cost
squid	$ _____ case		$ _____
sanma (Pacific saury)	$ _____ case		$ _____
sardine	$ _____ case		$ _____
saba	$ _____ case		$ _____
lightsticks*	$ _____ case		$ _____

*lightstick information refers to time period before new gear restrictions

Fishing Gear Costs For Primary Target Species

24. What was the average cost to resupply your fishing gear for each trip in 2000 (hooks, branch lines, swivels, snaps, weights, leaders, floats, dye, gloves, boots, gaffs, etc…).

cost per trip $_____

25. Where did you purchase most of your fishing supplies in 2000? (i.e., POP, Ahi fishing company) _____

26. Did you process any of the fish, other than heading/gutting, and bleeding, that has an extra cost (i.e., bags, shipping boxes, shipping charges)?

no yes

if yes, what was used to process the fish:

_____ $_____

27. Food cost per fishing trip: $_____

27.a. If contracted (foreign) crew were used how much was spent on food while in port?

$_____

For questions 28-33, please answer for species you <u>secondarily</u> targeted in 2000.

28. What was your secondary target in 2000? *(please check)*

tuna:_____

swordfish:_____

mixed:_____

Approximate trip costs when targeting <u>secondary</u> species. Please complete the following tables. Use an approximate average for the year 2000.

29. Fuel, engine oil and ice used on a typical trip when targeting <u>secondary</u> species:

cost	price	# per trip	total cost
fuel	avg. $ _____ gallon max. $ _____ gallon	gallons	$
engine oil	avg. $ _____ gallon max. $ _____ gallon	gallons	$
ice	$ _____ per 300 lb block	blocks	$

30. Bait and lightsticks for typical trip when targeting <u>secondary</u> species:

cost	price	# per case	cases per trip	total cost
squid	$ _____ case			$ _____
sanma (Pacific saury)	$ _____ case			$ _____
sardine	$ _____ case			$ _____
saba	$ _____ case			$ _____
lightsticks*	$ _____ case			$ _____

*lightstick information refers to time period before new gear restrictions

Fishing Gear Costs For Secondary Target Species

31. What was the average cost to resupply your fishing gear for each trip in 2000 (hooks, branch lines, swivels, snaps, weights, leaders, floats, dye, gloves, boots, gaffs, etc...).

cost per trip $_____

32. Where did you purchase most of your fishing supplies in 2000? (i.e., POP, Ahi fishing company) _____

33. Did you process any of the fish, other than heading/gutting, and bleeding, that has an extra cost (i.e., bags, shipping boxes, shipping charges)?

no yes

if yes, what was used to process the fish:

_____$_____

34. Food cost per fishing trip: $_____

34.a. If contracted crew were used how much was spent on food while in port?

$_____

LABOR COSTS

In the following questions the terms 'share' and 'percentage' (%) are generally interpreted as the same concept- part of the revenue from a fishing trip goes towards the crew. This is in contrast to 'flat rate' ($) which is when a crewmember earns the same amount of money regardless of the revenues from a fishing trip.

35. If you use the share or percentage method is the % derived from the net or gross revenue of the trip *(please circle)*?

net gross

35.a. If you circled net, which of the follow expenses were subtracted from your gross revenue before calculating the crew share ***(please check all that apply)*****?**

food _____ auction fees ____

fuel and oil ____ gear replacement ____

ice and bait ____

other _____

36. How many crewmembers were aboard a typical fishing trip (besides captain)?

_____ crewmembers.

37. How were the captain and crewmembers paid? Please fill in the following table:

	pay	extra duty? (i.e. engineer, cook)
captain	_____ $ or %	
1st mate/deck boss	_____ $ or %	
crewmember 1	_____ $ or %	
crewmember 2	_____ $ or %	
crewmember 3	_____ $ or %	
crewmember 4	_____ $ or %	
crewmember 5	_____ $ or %	

38. Did the crew received bonuses?

no yes

38.a. if yes, please describe

_____

39. Did you use foreign (contracted) crewmembers? *(please circle)*

no yes

39.a. if yes, what are some of the expenses, besides salary, to retain a contracted crewmember?

_____$_____

_____$_____

40. On days when you were fishing, about how many hours per day did the crew work?

_____hours per day.

41. While in port how many total hours did each crewmember normally work unloading, cleaning, repairing and reloading the boat?

_____hours.

42. What percentage of revenue went towards the owner? _____%

42.a. Is this percentage from the net or the gross revenue? *(please circle)*

net gross

43. What percentage of revenue went towards the vessel? _____%

43.a. Is this percentage from the net or the gross revenue (please circle)?

net gross

OTHER COSTS

Travel to Mainland

44. Did this vessel ever travel to the mainland? *(please circle)*

no yes

44.a. if yes, then why_____

44.b. if yes, did the vessel fish on the way to and back from the mainland? *(please circle)*

no yes

44.c. if yes, what were the extra costs associated with traveling to the mainland (i.e. fuel, dock fees, etc...)?

_____ $_____

_____ $_____

Repairs

45. When was the last time the engine was overhauled? _____

45.a. cost $_____

46. What were other repairs and their costs in 2000?

(please list) _____ $_____

_____ $_____

_____ $_____

_____ $_____

46.a total costs of repairs $_____

47. Dry dock:

When did you last go? _____

47.a. How often do you go? Once every _____years.

47.b. How much did it cost for your boat the last time you went? (scrape, zinc and paint only, not the repairs covered above). $_____

48. How much was spent on daily maintenance of vessel? **annual** or **trip** *(please circle)*

$_____

48.a. What were some of these costs for:_____

_____

49. Mooring fees in 2000:

$_____ per **day** or **month** *(please circle).*

50. Insurance costs per month in 2000:

$_____

This includes *(please check)*:

vessel and liability _____

vessel (hull) only _____

liability ("P and I") _____

health (specify who is covered)_____

vessel, liability and health _____

51. Bookkeeping/ accounting costs in 2000:

$_____ per **month** or **year** *(please circle)*

52. Boat loan payments per month in 2000:

$_____

52.a. How much time is left on this loan? _____ **months** or **years** *(please circle)*

53. Are there any other vessel costs which I haven't included?

no yes

if yes, please list: communications (sat phone, email, etc) $_____

_____$_____

_____$_____

_____$_____

FISH SALES

54. Where did you sell your fish in 2000? *(please check all that apply).*

UFA_____

directly to restaurants_____

fish brokers (please name)_____

other _____

55. When you sold your fish was there an auction or consignment fee?

no yes

55.a. If yes how much did they charge? $_____

56. Where there any other costs you had to pay them?

no yes

56.a. What were the charges for and how much were they?

_____$_____

MISCELLANEOUS QUESTIONS

57. How many days were you at sea last year?

_____days

58. Given the weather and stock conditions that existed in 2000, would you have liked to have taken more trips or fished more days than you did last year?

no yes

58.a. If you would have liked to fish more, what are the reasons why you didn't? *(please check all that apply)*:

breakdowns_____

other jobs_____

fishing in other fishery_____

area closures_____

other regulations_____

other *(please list)*_____

58.b. If not for the reasons you just mentioned, how many more trips would you like to have taken (or more days fished) in 2000?

_____extra trips in 2000

_____**extra days fished in 2000** or **extra days per trip** *(please circle)*

59. Did the boat also fish in other fisheries in 2000?

no yes

if yes, which fisheries *(please check)*: HI bottomfish: _____

CA longline: _____

other *(please describe)*: _____

60. Would you sell this vessel if you could?

no yes

60.a. if yes, why haven't you? _____

61. What do you estimate you could sell the boat for before the new regulations?

without the permit $_____; where _____

with the permit $_____; where_____

62. What do you estimate you could sell the boat for after the new regulations?

without the permit $_____; where _____

with the permit $_____; where_____

63. What do you estimate the permit alone would sell for before the new regulations?

$_____

64. What do you estimate the permit alone would sell for after the new regulations?

$_____

65. What are your main reasons for staying in the Hawaii longline fishery (vs. other fisheries)? *(please check top five reasons)*:

enjoy Hawaii lifestyle/weather_____
this is what I know how to do_____
long-term family tradition _____
cost of converting vessel would be too high ___
operating costs would be too high _____
other fisheries unattractive due to regulation _____
cost of relocating would be too high _____
enjoy catching tuna/swordfish over other species _____
have family here _____
market is steady here _____
there are a lot/enough fish here___
too risky to switch _____
all other fisheries are depleted _____
other *(please describe)* _____

RECENT RULINGS AND MANAGEMENT DECISIONS

66. How have the recent federal rulings (area closures, gear restrictions and increased observer coverage, turtle handling) affected your operation, specifically economically?

67. How has the recent ruling on shark finning affected your operations, specifically economically?

68. Given the current circumstances what are your long-term plans for the vessel (i.e. move to mainland fisheries, sell the boat, join other HI fisheries)?

EXPERIENCE/DEMOGRAPHICS

69. How many years have you been fishing commercially (any kind)? _____years.

70. How many of those were longlining? _____years.

71. How many of those years longlining were as captain? _____years.

72. How many of those years were as a longline captain in Hawaii? _____years.

73. How long have you captained this vessel? _____ years or **trips** *(please circle)*

74. Do you own other fishing vessels besides this one?

no yes:

74.a. if yes, what fisheries are they involved in? *(please list)*

_____

74.b. if yes did your other vessels in the Hawaii longline fishery operate as a fleet?

no yes

75. Does your vessel/s work with other vessels other than your own?

no yes

76. What percentage of your family's total income came from the boat in 2000?

_____%

76.a. If less than 100% what were the other sources of income for your family? *(please list)*

_____

_____

_____

77. Would you say that you made a reasonable living (or return) operating this fishing vessel in 2000?

no yes

78. What year were you born? _____

79. Were any of your close relatives a commercial fisherman?

no yes

if yes, whom: please list relation _____

_____

_____

_____

_____

80. Do you live in Hawaii?

no:

then where?_____

yes:

how long ?_____ years

81. How do you describe your ethnic background? _____

82. Is there anything else you would like to say? For example:

What do you think would be the best way to manage the longline fishery? What would you like the Council or NMFS to do? How would you like to see things change?

We will summarize what you have told us and send you a copy so that you can make sure we haven't made any mistakes. May I have your mailing address?

Vessel name:

Owner name:

Address:

Western Pacific
Regional Fishery
Management Council

University
of Hawaii
at Manoa